National Institute of Environmental Health Sciences

# The carbon footprint of a renal service in the United Kingdom

**Author(s):** Connor A, Lillywhite R, Cooke MW
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**Abstract:**

BACKGROUND: Anthropogenic climate change presents a major global health threat. However, the very provision of healthcare itself is associated with a significant environmental impact. Carbon footprinting techniques are increasingly used outside of the healthcare sector to assess greenhouse gas emissions and inform strategies to reduce them. AIM: This study represents the first assessment of the carbon footprint of an individual specialty service to include both direct and indirect emissions. METHODS: This was a component analysis study. Activity data were collected for building energy use, travel and procurement. Established emissions factors were applied to reconcile this data to carbon dioxide equivalents (CO(2)eq) per year. RESULTS: The Dorset Renal Service has a carbon footprint of 3006 tonnes CO(2)eq per annum, of which 381 tonnes CO(2)eq (13% of overall emissions) result from building energy use, 462 tonnes CO(2)eq from travel (15%) and 2163 tonnes CO(2)eq (72%) from procurement. The contributions of the major subsectors within procurement are: pharmaceuticals, 1043 tonnes CO(2)eq (35% of overall emissions); medical equipment, 753 tonnes CO(2)eq (25%). The emissions associated with healthcare episodes were estimated at 161 kg CO(2)eq per bed day for an inpatient admission and 22 kg CO(2)eq for an outpatient appointment. CONCLUSION: These results suggest that carbon-reduction strategies focusing upon supply chain emissions are likely to yield the greatest benefits. Sustainable waste management and strategies to reduce emissions associated with building energy use and travel will also be important. A transformation in the way that clinical care is delivered is required, such that lower carbon clinical pathways, treatments and technologies are embraced. The estimations of greenhouse gas emissions associated with outpatient appointments and inpatient stays calculated here may facilitate modelling of the emissions of alternative pathways of care.

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## Resource Description

**Exposure :**

weather or climate related pathway by which climate change affects health

Unspecified Exposure

**Geographic Feature:**

resource focuses on specific type of geography

None or Unspecified

**Geographic Location:** ☑

resource focuses on specific location

Non-United States

**Non-United States:** Europe

**European Region/Country:** European Country

**Other European Country :** United Kingdom

**Health Impact:** ☑

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

**Medical Community Engagement:** ☑

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

**Mitigation/Adaptation:** ☑

mitigation or adaptation strategy is a focus of resource

Mitigation

**Resource Type:** ☑

format or standard characteristic of resource

Research Article

**Timescale:** ☑

time period studied

Time Scale Unspecified